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Abstract

PURPOSE:To form a monomolecular layer of atomic layer epitaxy in a short time in forming a thin film of semiconductor single crystal from two or more kinds of constituent elements by forming a substantial part of film thickness from low-temperature thermally decomposable raw materials and the rest of the film from raw materials decomposable at a higher temperature. CONSTITUTION:Raw materials of two or more kinds of constituent elements are alternately fed by an atomic layer epitaxy, a thin film of semiconductor single crystal is grown by each mono-atomic layer and piled to form semiconductor crystal. In the operation, for example, in growing a thin film of single crystal of GaAs, a mono-atomic layer of Ga is formed from a trialkylgallium except trimethylgallium and trimethylgallium and a mono-atomic layer of As is formed from arsine. Consequently, time required for formation of a monomolecular layer by atomic epitaxy is extremely shortened.